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Arizona Corporation Commission  
**DOCKETED**

November 19, 2004

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AZ CORP COMMISSION  
DOCUMENT CONTROL

2004 DEC 13 P 12:53

RECEIVED

Re: In the matter of Salt River Project *et al.*  
Docket No. L-00000B-04-0126

Dear Ms. Ryan:

Enclosed for filing in the above captioned proceeding are an original and twenty-five (25) copies of the following documents:

- 1) An Analysis of Biological and Cultural Resources Within An Alternate Route As Proposed By The Save Our Valley Association, as prepared by Carothers Environmental, LLC;
- 2) The CV for Kenneth R. Carothers;
- 3) Transmission Routing Report on Pinal West – Santa Rosa/Southeast 500 kV for Save Our Valley Association, as prepared by Gary Rich, PE;
- 4) The CV of Gary Robert Rich, PE;
- 5) Summary Testimony of Dennis M. Peed, a Co-Chairman of Save Our Valley Association; and
- 6) Summaries of the Testimony of ten (10) additional individuals SOVA will be calling as witnesses during the hearings scheduled to resume on December 16-17, 2004.

Messrs. Carothers and Rich will be testifying in support of the reports they have prepared which are designated as Items 1 and 2 above.

It is estimated that the direct case presentation of Save Our Valley Association will entail approximately 2-2 ½ hours.

Colleen Ryan, Supervisor

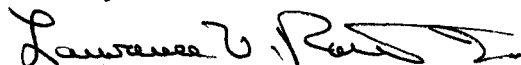
December 10, 2004

Page 2

Copies of the enclosed materials are being served electronically today on all parties to the above-referenced proceeding. In addition, a copy is being served electronically on Laurie Woodall, Chairman of the Arizona Power Plant and Transmission Line Siting Committee, who, in turn, will arrange for direct transmittal of the same to the individual members of the Siting Committee with the exception of Jeff McGuire. Pursuant to directions received from Chairman Woodall's Office, Mr. McGuire's copy will be faxed to him today.

Please contact me in the event you should have any questions regarding the enclosed materials or the above information. Thank you for your assistance.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence V. Robertson, Jr.", with a stylized flourish at the end.

Lawrence V. Robertson, Jr.

LVR:cl

cc: All Parties of Record  
Save Our Valley Association  
Kenneth Carothers  
Gary Rich

enclosures

**AN ANALYSIS OF BIOLOGICAL AND CULTURAL RESOURCES  
WITHIN AN ALTERNATE ROUTE AS PROPOSED BY THE  
SAVE OUR VALLEY ASSOCIATION  
Pinal West to SEV/Browning 500kV Transmission Project**

**Prepared For:**

**SAVE OUR VALLEY ASSOCIATION  
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**Prepared By:**

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**DECEMBER 10, 2004**

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## **EXECUTIVE SUMMARY**

Carothers Environmental, LLC (CE) was retained by the Save Our Valley Association (SOVA) to evaluate potential environmental impacts that could be expected due to rerouting (SOVA Route) a portion of the proposed Pinal West to SEV/Browning 500kV Transmission Project (Project). CE conducted biological field reconnaissance and conducted a Class I Cultural Resources Inventory of the proposed SOVA Route as well as performed an extensive review of the Project application and supporting documentation and exhibits. CE has determined that the SOVA Route would create no significant environmental effects. It is CE's opinion that consideration of the proposed SOVA Route would occasion a review under the National Environmental Policy Act (NEPA) as it includes a portion of federally administered land under the jurisdiction of the Bureau of Land Management (BLM). Inclusion of the proposed SOVA Route on BLM administered land is in conformance with the BLM's Gila South Resource Management Plan as it is within an existing BLM designated utility corridor. This report is presented to the Arizona Power Plant and Transmission Siting Committee (Siting Committee) to support SOVA's request for consideration of the proposed SOVA Route in issuing a Certificate of Environmental Compatibility for the Pinal West to SEV/Browning 500kV Transmission Project.

## INTRODUCTION

The Save Our Valley Association (SOVA) is an association comprised of approximately 250 property owners of the Hidden Valley area (southeast of Maricopa, Arizona, Pinal County) that object to the Pinal West to SEV/Browning 500kV Transmission Project (Project) preferred and alternate routes through Hidden Valley currently proposed by the Salt River Project and the other applicants (SRP) (Docket Number: L00000B-04-0126). Carothers Environmental, LLC (CE) was retained by SOVA to evaluate biological, cultural, and other environmental issues concerning a proposed SOVA alternate route for the area in Hidden Valley. The SOVA proposed route (SOVA Route) consists of a modification to the Project's current preferred and alternate routes where the proposed transmission line exits the proposed Pinal West substation and proceeds southeast through Hidden Valley towards the existing Santa Rosa substation. The SOVA Route would consist of the use of an existing Bureau of Land Management (BLM) transmission corridor to the west of the Project's current proposed alignment for a distance of several miles. The proposed SOVA Route would use thereafter be on or adjacent to private lands for several miles, as more particularly described in a report to be submitted by Gary Rich, another consultant retained by Sova. This document evaluates potential environmental affects if the SOVA Route were to be considered by the Siting Committee (Siting Committee) for the placement of the proposed transmission line.

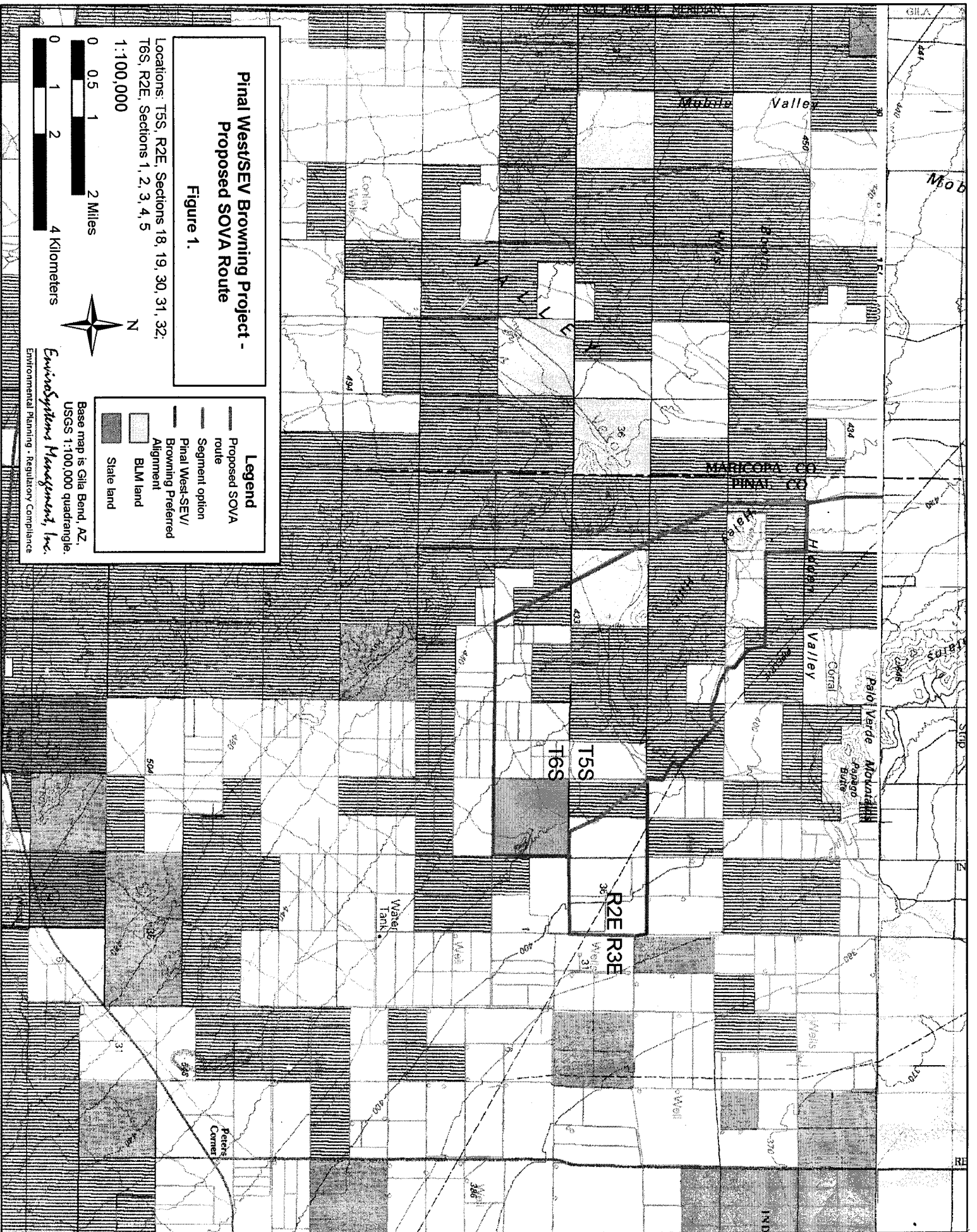
## METHODOLOGY

CE principal Kenneth R. Carothers and staff biologists conducted multiple tasks to gather information and evaluate current conditions along the proposed SOVA Route. In addition to specific tasks performed by CE; EnviroSystems Management, Inc. (ESM) was retained by CE to perform a Class I Cultural Resources Inventory. CE also consulted with Mr. Gary Rich, an electrical engineering consultant retained by SOVA. Specific tasks conducted by CE under contract to SOVA included attendance at Siting Committee hearings for the subject case, a biological field investigation of the proposed SOVA Route, telephone conversations with BLM staff and review of TEP/BLM case files (BLM Case Files 7274 and 7872), review of the current Project application and exhibits submitted to the Siting Committee, review of existing literature concerning biological and cultural resources in the vicinity of the proposed SOVA Route, and review of materials provided by SRP, as requested by SOVA's attorney Mr. Lawrence V. Robertson Jr., regarding Greystone Environmental's research conducted for proposed and alternate routes.

**FIGURE 1 -**

**Pinal West/ SEV Browning Project –  
Proposed SOVA Route**

**(See Attachment One with this Email)**





## **RESULTS AND DISCUSSION**

Primary factors considered in this document are biological and cultural resources along the proposed SOVA Route. In order to obtain current cultural resources information, CE retained ESM to conduct a Class I Cultural Resources Inventory of the proposed SOVA Route. To assess potential biological impacts, CE biologists conducted a field investigation of the proposed SOVA route. Cultural and biological resources are discussed separately in the following sections.

### **Biological Resources**

The proposed SOVA Route was visited on December 7, 2004 by CE biologists Jerry Monks and Jack Zittere to determine the suitability for threatened, endangered and sensitive (TES) species as well as to assess overall environmental significance. All proposed access routes along the SOVA Route were driven or walked in order to assess habitat types and conditions, and probability of supporting TES species. The survey effort was not species specific in nature and was meant to provide an overview of whether listed species have the potential to occur within or near the proposed SOVA Route.

All plants and animals observed were identified to genus and/or species level. Locations of significant species or environmental features were recorded with a handheld Garmin GPS and digitally photographed.

### **Existing Conditions**

The majority of the proposed SOVA Route occurs within the Colorado River Valley subdivision of the Sonoran Desertscrub habitat type with some transition into the Arizona Upland subdivision of the Sonoran Desertscrub habitat type where the proposed SOVA Route passes along the base of the Haley Hills (Brown 1994).

The aforementioned habitat within and adjacent to the proposed SOVA Route is in fair to excellent condition being largely undisturbed except for the presence of the existing 345 kV transmission line (TEP-Westwing), and a series of access roads leading to and from the transmission line.

Topographically the proposed SOVA Route extends through flat alluvial plains bisected by dry washes. Soils are generally well developed and composed of silt and sand. The areas adjacent to the Haley Hills consist of rolling hills divided by small washes. Soils in these areas are generally undeveloped and consist of gravel and larger rock.

Vekol Wash is crossed by the proposed SOVA Route immediately south of the Haley Hills. This wash represents a fairly significant meso to xeroriparian habitat.

The Colorado River Valley subdivision of the Sonoran Desertscrub habitat type that is prevalent along the north end of the proposed SOVA Route does not represent suitable habitat for TES species. Sections of the proposed SOVA Route that traverse through rural developments west of the Santa Rosa area do not represent suitable habitat for any listed TES species.

Suitable TES species habitat is present within the proposed SOVA Route in two locations. The first is along an approximately 200-meter portion of the proposed SOVA Route adjacent to the Haley Hills and the second is where the proposed SOVA Route crosses Vekol Wash. There is a band of suitable TES species habitat at this location that spans the width of the wash where the proposed SOVA Route would cross Vekol Wash (approximately 150 meters). Tables 1 and 2 provide flora and fauna observed along and adjacent to the proposed SOVA route during the December 7, 2004 field reconnaissance conducted by CE.

**Table 1: Flora observed within and adjacent to TEP-Westwing ROW  
(Proposed SOVA Route)**

<b>Common Name</b>	<b>Scientific Name</b>
Graythorn	<i>Condalia(Ziziphus) lycioides</i>
Creosote Bush	<i>Larrea tridentata</i>
Jimmyweed	<i>Isocoma tenuisecta</i>
Wolfberry	<i>Lycium spp.</i>
Triangle Leaf Bursage	<i>Ambrosia deltoides</i>
Mesquite	<i>Prosopis velutina</i>
Fish-hook Barrel Cactus	<i>Ferocactus wislizenii</i>
Saguaro Cactus	<i>Carnegiea gigantea</i>
Desert Fluffgrass	<i>Erionueron pulchellum</i>
Yellow Palo Verde	<i>Cercideum microphylla</i>
Ocotillo	<i>Fouqueria splendens</i>
Canyon Ragweed	<i>Ambrosia ambrosioides</i>
Desert Willow	<i>Chilopsis linearis</i>
Teddy Bear Cholla	<i>Opuntia bigelovii</i>
Ironwood	<i>Olnya tesota</i>
Hedgehog Cactus	<i>Echinocereus spp.</i>
Pincushion Cactus	<i>Mammalaria spp.</i>
White Ratany	<i>Krameria grayi</i>
Brittle Bush	<i>Encelia farinose</i>
Desert Broom	<i>Baccharis sarothroides</i>
Desert Acacia	<i>Acacia smalli</i>
Catclaw Acacia	<i>Acacia greggi</i>
White-thorn Acacia	<i>Acacia constricta</i>
Filaree	<i>Erodium cicutarium</i>
Globemallow	<i>Sphaeralcea ambigua</i>
Crucifixion Thorn	<i>Castela emoryi</i>
Four-Wing Saltbush	<i>Atriplex canescens</i>

**Table 2: Fauna observed within and adjacent to TEP-Westwing ROW  
(Proposed SOVA Route)**

<b>Common Name</b>	<b>Scientific Name</b>
Mourning Dove	<i>Zenaida macoura</i>
Black-Tailed Gnatcatcher	<i>Piliptura melanura</i>
Cactus Wren	<i>Campilorhyncus brunneicapillus</i>
Red-Tailed Hawk	<i>Buteo jamacaiensis</i>
Gambel's Quail	<i>Callipepla gambelii</i>
Antelope Groundsquirrel	<i>Spermophilus spp.</i>
Common Raven	<i>Corvus corax</i>

Based on the on-site evaluation of the habitat, in conjunction with a literature search of the U.S. Fish and Wildlife Service's (USFWS) website, seventeen special status species were evaluated for their potential to occur along the proposed SOVA Route.

Based on vegetation communities, soil types, habitat characteristics, and existing conditions of the subject property, fourteen of these species have virtually no potential to occur on-site, and are not discussed in this report.

Of the seventeen special status species considered, three species have low to high potential to occur along or adjacent to the proposed SOVA Route. These species and reasons for them to potentially occur are discussed below.

Table 3 provides TES species documented by USFWS as occurring in Pinal County, Arizona. CE has assigned a likelihood of occurrence for each species within the proposed SOVA Route. Our determinations are based on whether or not habitat that meets the requirements of each species is present within the proposed SOVA Route.

**Table 3: TES species identified as potentially occurring in Pinal County by USFWS**

Common Name	Scientific Name	Status	Likelihood of Occurrence along SOVA Route
Acuna Cactus	<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	C	None
Arizona Hedgehog Cactus	<i>Echinocereus triglochidiatus</i> var. <i>arizonicus</i>	E	None
Bald Eagle	<i>Haliaeetus leucocephalus</i>	AD, T	None
Brown Pelican	<i>Pelicanus occidentalis</i>	DM, E	None
Cactus Ferruginous Pygmy-owl	<i>Glaucidium brasilianum cactorum</i>	E	Possible
Desert Pupfish	<i>Cyprinodon macularius</i>	E	None
Gila Topminnow	<i>Poeciliopsis occidentalis</i>	E	None
Lesser Long-nosed Bat	<i>Leptonycturis curasoae yerbabuenae</i>	E	Possible
Loach Minnow	<i>Tiaroga cobitis</i>	T	None
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	T	None
Nichol's Turk's Head Cactus	<i>Echinocactus horizonthalonius</i> var. <i>nicholii</i>	E	None
Razorback Sucker	<i>Xyrauchen texanus</i>	E	None
Sonoran Desert Tortoise	<i>Gopherus agassizii</i>	AZ SSC	Likely
Southwestern Willow Flycatcher	<i>Empidonax trailii extimus</i>	E	None
Spikedace	<i>Meda fulgida</i>	T	None
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C	None
Yuma Clapper rail	<i>Rallus longirostris yumanensis</i>	E	None

## **Cactus Ferruginous Pygmy-Owl**

The federally endangered cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) (CFPO) could, by USFWS and Arizona Game and Fish Department (AGFD) constituent habitat element definitions (USFWS, AGFD 2000), be present in the vicinity of Haley Hills and Vekol Wash segment of the proposed SOVA Route. Suitable habitat for the pygmy-owl is defined as areas below 4,000 feet (1,220 meters) in elevation containing one or more of the following vegetation communities (USFWS, AGFD 2000):

- **Riparian vegetation:** Broadleaf, riparian gallery forests of cottonwoods, willows, mesquites, ash, or other trees and associated species growing along watercourses.
- **Sonoran desertscrub:** Characterized by braided wash systems and vegetation which is dense and well-structured. Key species include mesquite, foothill and blue palo verdes, ironwood, saguaro, organ pipe cactus, and various other shrubs and cacti.
- **Semidesert grasslands:** Those containing wooded drainages with mesquite, hackberry, ash, and a limited number of saguaros.

Due to the presence of both mature columnar cacti and trees with a diameter at breast height (DBH) of at least 6" along portions of the proposed SOVA Route, it would likely be necessary to perform CFPO surveys prior to any construction-related activities to determine if the CFPO would be potentially impacted. Probability of the SOVA Route being occupied by one or more CFPO is low based on information provided in *Recommended Guidance for Private Landowners Concerning The Cactus Ferruginous Pygmy-Owl* (USFWS March 2000). This document states that in Survey Zone Three (in which the SOVA Route falls), the likelihood of occurrence of CFPO is considered low. USFWS does not recommend that surveys for this species be conducted for private actions in this Survey Zone. However, if any federal action that would involve land-clearing activities is proposed in Survey Zone Three where suitable habitat elements for the CFPO are present, USFWS recommends that formal surveys be conducted. If CFPO were determined to be present, the project proponent would have to proceed with consultation with the USFWS under Section 7 of the Endangered Species Act. Based on the USFWS determination for the Palo Verde to Pinal West project (Consultation Letter AESO/SE 02-21-03-I-0181, 2003) and considering minimal vegetation clearing activities associated with transmission line construction, CE believes that a determination of may affect, but not likely to adversely affect this species would be obtained through consultation with the USFWS.

## **Lesser Long-Nosed Bat**

The federally endangered lesser long-nosed bat (*Leptonycturis curasoae yerbabuenae*) is known to occur in habitat containing agave and mature columnar cacti (saguaro). Mature saguaros were observed along portions of the proposed SOVA Route. For any federal action that would involve land clearing activities proposed in suitable habitat for the lesser long-nosed bat, the project proponent would have to proceed with consultation with the USFWS under Section 7 of the Endangered Species Act. Based on minimal vegetation clearing activities associated with

transmission line construction, CE believes that a determination of may affect, not likely to adversely affect this species would be obtainable through consultation with the USFWS.

### **Desert Tortoise**

The BLM Sensitive (S) and AGFD Wildlife of Special Concern (WC) desert tortoise (Sonoran population) (*Gopherus agassizii*) is likely to occur in the vicinity of the Haley Hills. This species prefers rocky habitats and may be present on either the slopes or deeper washes of the Haley Hills. A formal tortoise survey would be advised prior to construction activities and the project proponent would be required to follow the guidelines provided by AGFD in *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* during any construction-related activities on BLM land (AGFD 1997). This species is not protected under the federal Endangered Species Act, and therefore would not require consultation with the USFWS.

### **Cultural Resources**

CE retained ESM to conduct a Class I Cultural Resources Inventory of the proposed SOVA Route. The Class I Cultural Resources Inventory is provided in Appendix A. In summary, three previous surveys within and bounding the proposed SOVA Route were discovered through the Class I Cultural Resources Inventory. The first follows the proposed SOVA Route and was conducted in 1974 by the Arizona State Museum for Tucson Gas & Electric's (now TEP) El Sol-Vail Transmission Line (Project No. 1974-1.ASM). This project is superseded by a 1985 survey by ACS for APS's Santa Rosa to Gila Bend 230 kV Transmission Line (1985-219.ASM). This 1985 survey also covered the currently certificated 230 kV Route, which the proposed SOVA Route deviates from in Section 2 to avoid a section of Arizona State Land. This route deviation results in two miles of currently unsurveyed ROW along the proposed SOVA Route. Assuming this two-mile portion of the route would cross private land, a cultural resources inventory would likely be required under the guidelines for issuing a Certificate of Environmental Compatibility. Additionally, the 1985 survey route crossing BLM and private lands will likely require a resurvey for cultural resources due to the general policy of the State Historic Preservation Office (SHPO). SHPO generally requires a resurvey after ten years. The third documented previous survey is in Township 6S, Range 2E, Section 12, immediately southeast of Section 2. This survey was completed in 1990 by ACS and involved six regional catchments near Stanfield, Arizona (11-155.SHPO). The last project involved a short pipeline route surveyed in 1981 (BLM-020-12-041); this pipeline is overlapped by the 1985 survey where the 1981 ROW intersects the 345 kV transmission line.

Previous cultural resources surveys documented in the Class I Cultural Resources Inventory resulted in the discovery and documentation of very few sites. Only two sites were recorded within the proposed SOVA Route where it overlaps with the existing TEP 345 kV transmission route were documented during the original 1974 survey-AZ Z:4:3(ASM) and Z:4:5(ASM). These sites consist of prehistoric artifact scatters that have not been evaluated as to their eligibility to the National Register of Historic Places (NRHP). Interestingly, neither site was

updated during the 1985 survey; this observation leads us to believe that the sites may not have been encountered. Only five additional sites are located within about a ½ mile of the proposed SOVA route (Appendix A, Table 2).

The possibility of locating additional archaeological sites within the proposed SOVA Route is likely if an additional pedestrian survey were conducted; however, the site density will remain relatively low. Furthermore, it is highly probable that certain sites and site types would be somewhat contained and could be avoided by the proposed 500 kV transmission line. Therefore, it is believed that impacts to cultural resources caused by the use of the proposed SOVA Route would be minimal and affordably mitigable if sites could not be avoided by all construction impacts

## **CONCLUSION**

Because of implementing regulations issued by the Council on Environmental Quality (40 CFR§1500) the BLM is required to comply with NEPA. Based on these requirements, if the project proponent were to apply for a ROW grant from the BLM, BLM would require the preparation of an Environmental Assessment (EA), or possibly an Environmental Impact Statement (EIS) before they could issue a ROW grant. Based on the January 2004 completion of an EA by the BLM for the Palo Verde to Pinal West Project (BLM Case File Number: AZA-32057CE), this project would likely require an EA rather than an EIS. It is CE's professional opinion that there are no issues concerning biological and/or cultural resources that would prevent regulatory approval of the proposed SOVA Route. All identified potential impacts could be mitigated through various measures, all of which are already expected to be required at some level within other areas of the Project's preferred and alternate routes.

## CITATIONS

- Arizona Game and Fish Department. 1997. Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects. Revised January 17, 1997.
- Brown, D.E. (Ed.). 1994. Biotic communities: Southwestern United States and Northwestern Mexico. Salt Lake City, UT: University of Utah Press.
- U.S. Department of Interior, Fish and Wildlife Service and Arizona Game and Fish Department. 2000. Cactus Ferruginous Pygmy-Owl Survey Protocol. 10 pgs. Revised January 2000.
- U.S. Department of Interior, Fish and Wildlife Service. 2003. Letter from Steven Spangle, USFWS Supervisor addressed to Ms. MarLynn Spears, Acting Field Manager, Bureau of Land Management, March 27, 2003.



**APPENDIX A**

**CLASS I CULTURAL RESOURCES INVENTORY**

December 9, 2004

Mr. Kenneth Carothers  
**Carothers Environmental, LLC**  
P.O. Box 4150  
Sedona, Arizona 86340  
*via email*

RE: Class I Records Search for SOVA's Proposed Route for the Pinal West to Southeast Valley/Browning Project, Pinal County, Arizona

Dear Ken:

Per your request, EnviroSystems Management, Inc. (EnviroSystems) conducted a Class I records search for the 8.9-mile preferred alternative proposed by the Save Our Valley Association with regards to the Pinal West to SEV/Browning 500 kV transmission line planned by SRP, APS, and TEP. The route that was identified to us extends from the recently permitted Pinal West substation in T5S, R2E, Section 18; heads south-southeast along an existing 345 kV powerline; turns east at the southern corner of Sections 4 and 5 in T6S, R2E, extending along a certificated 230 kV line; and then leaves this right-of-way (ROW) to go around state land in Section 2 of T6S, R2E (Exhibit 1). The Class I searches were conducted on December 3 and 7, 2004 using AZSITE, Arizona's electronic archaeological project/site repository accessible to permitted archaeologists.

The records search revealed three previous surveys within and bounding the proposed route. The first follows the SOVA route and was conducted in 1974 by the Arizona State Museum for Tucson Gas & Electric's (now TEP) El Sol-Vail Transmission Line (Project No. 1974-1.ASM). This project is superseded by a 1985 survey by ACS for APS's Santa Rosa to Gila Bend 230 kV Transmission Line (1985-219.ASM). This 1985 survey also covered the currently certificated 230 kV ROW, which the proposed SOVA route deviates from in Section 2. This route deviation results in two miles of currently unsurveyed ROW. Assuming this 2-mile portion of the route would cross private land, survey may still be required under the guidelines for a Certificate of Environmental Compatibility. Additionally, the 1985 survey route crossing BLM and private lands will likely require resurvey for cultural resources. The general policy of the State Historic Preservation Office warrants resurvey after 10 years. Since the 1985 survey is nearly 20 years old, resurvey is recommended. The third previous survey is in T6S, R2E, Section 12 immediately southeast of Section 2. This survey was completed in 1990 by ACS and involved six regional catchment basins near Stanfield (11-155.SHPO). The last project involved a short pipeline route surveyed in 1981 (BLM-020-12-041); this pipeline is overlapped by the 1985 survey where the 1981 ROW intersects the 345 kV powerline.

Table 1. Previous Projects within or adjacent to the Proposed SOVA Route

<b>Project No.</b>	<b>Project Name</b>	<b>Reference</b>
BLM-020-12-041	6.58-acre Pipeline	Bennett 1981
1974-1.ASM	El Sol-Vail Transmission Line	McDonald 1974
1985-219.ASM	Santa Rosa to Gila Bend 230 kV Transmission Line	Green 1985
11-155.SHPO	Archaeological Assessment of Six Regional Catchment Basins near Stanfield	Irwin 1990

These previous surveys resulted in the discovery and documentation of very few sites. Only two sites were recorded within the SOVA portion of the 345 kV transmission route during the original 1974 survey—AZ Z:4:3(ASM) and Z:4:5(ASM). These sites consist of prehistoric artifact scatters that have not been evaluated as to their eligibility to the National Register of Historic Places (NRHP). Interestingly, neither site was updated during the 1985 survey; this observation leads us to believe that the sites may not have been encountered. Only five additional sites are located within about a ½ mile of the proposed SOVA route; these sites are identified in Table 2 below.

Table 2. Archaeological Sites Located within ½ Mile of the Proposed SOVA Route

Site Number/Record Date	Site Type	Cultural Affiliation/Dates	NRHP Eligibility
AZ Z:4:1(ASM)/1967	Artifact scatter, bedrock mortars, petroglyphs	Hohokam/A.D. 1000-1150	Not evaluated
AZ Z:4:3(ASM)/1974	Sherd and lithic scatter w/FCR concentrations	Hohokam/A.D. 500-1450+	Not evaluated
AZ Z:4:4(ASM)/1974	Sherd and lithic scatter	Hohokam/A.D. 1100-1450+	Not evaluated
AZ Z:4:5(ASM)/1974	Lithic scatter	Unknown prehistoric	Not evaluated
AZ Z:4:8(ASM)/1982	Habitation site	Hohokam/A.D. 850-1150	Considered eligible
AZ Z:4:15(ASM)/1984	Rock alignment	Unknown/unknown	Not evaluated
AZ Z:4:17(ASM)/1985	Rock walls	Unknown/unknown	Not evaluated

Given these Class I results, EnviroSystems anticipates that the likelihood of locating additional archaeological sites within the proposed route is likely, yet the site density will remain relatively low. Furthermore, it is highly probable that certain sites and site types would be somewhat contained and could be avoided by the proposed 500 kV transmission line. Therefore, it is EnviroSystems' conclusion that the impacts to cultural resources caused by the use of SOVA's proposed route would be minimal and affordably mitigable if sites could not be avoided by all construction impacts.

If you need any additional information or have any questions or concerns, please do not hesitate to contact me at (928) 226-0236, via email at lneal@esmaz.com, or by cell phone at (928) 606-2258.

Sincerely,



Lynn A. Neal  
Vice President & Sr. Archaeologist

---

EnviroSystems Management, Inc.

**Figure 2**

**SOVA Class I Cultural Resources Review**

**EnviroSystems Project No. 04-1066**

**Exhibit 1. Project location Map**

**(See Attachment Two with this Email)**



**KENNETH R. CAROTHERS**  
Senior Consultant/Manager

**Office Addresses**

Carothers Environmental, LLC  
1785 West Highway 89A, Suite 3H  
Sedona, Arizona 86336  
(928) 203-9930

Carothers Environmental, LLC  
110 South Church Avenue, Suite 6320  
Tucson, Arizona 85701  
(520) 623-2800

**Education and Training**

1997	Bachelor of Science, Biology. Northern Arizona University, Flagstaff.
1998	ASCE Wetlands and 404 Permitting Certification.
1998	Shipley Environmental. Applying the NEPA Process/Writing Effective NEPA Documents.
1999	USFWS/AGFD Cactus Ferruginous Pygmy-owl Protocol Training.
1999	Shipley Environmental. Clear Writing for NEPA Specialists.
1989	Mexican spotted owl Certification. Region 3. Albuquerque, New Mexico.
1995	Southwestern willow flycatcher Certification, U.S. Fish and Wildlife Service.
2001	Certified Environmental Inspector, Environmental Assessment Association.
2001	Desert Tortoise Council. Desert tortoise handling workshop.
2002	Federal Energy Regulatory Commission. Post-certificate Environmental Compliance Seminar.
2002	Certified Mold Inspector, Environmental Assessment Association and CMICI
2003	MBA, University of Phoenix, Phoenix AZ (in progress).
2003	USFWS, "Train the Trainer" Mexican Spotted Owl Protocol Training and Certification.
2004	USFWS/AGFD. Chiricahua Leopard Frog Certification Workshop.
2001	USFWS Federal Endangered Species Survey Permit TE-050241

**Areas of Expertise**

Kenneth Carothers is Manager/Member and Senior Consultant of Carothers Environmental, LLC. His emphasis has been on the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), Clean Water Act (CWA), Phase I Environmental Site Assessment, and wildlife ecology. Mr. Carothers has been the principal-in-charge and primary author for several NEPA projects including the coordination of public involvement, agency scoping, legal notifications, all aspects of vegetation and wildlife assessment, and Section 7 Consultations. His NEPA involvement has included federal and state agencies, including the Bureau of Land Management, U.S. Fish and Wildlife Service, U.S. Forest Service, Utility companies, Arizona Department of Transportation, and Bureau of Indian Affairs. NEPA projects have ranged from natural gas pipeline and utilities construction, commercial and residential development, to road improvement projects.

Mr. Carothers' experience includes several years of staff and project management. He has consistently conducted threatened, endangered, and/or sensitive species inventory or monitoring every year since 1989, and is extremely familiar with multiple species' habitat and their ecology. By invitation from the U.S. Fish and Wildlife Service, he recently participated in a forum to comment on and develop the newly proposed Mexican spotted owl inventory protocol. Kenneth has been permitted by the U.S. Fish and Wildlife Service and certified by the USDA Forest Service to conduct inventory for this species since 1989. He is experienced in all levels of field biology survey procedures, especially those concerning threatened, endangered, and sensitive species. Mr. Carothers is also permitted by the U.S. Fish and Wildlife Service to conduct surveys for southwestern willow flycatchers, cactus ferruginous pygmy owls, several listed fish species, Kanab ambersnail, and others. Kenneth is able to coordinate all aspects of field data collection, supervision of biological crews, budget procedures, technical support arrangements, and written report production. Mr. Carothers has supervised crews surveying over 2.5 million acres of U.S. Forest service, Bureau of Land Management, National Park Service, and private lands throughout Arizona, Utah, New Mexico, Colorado, California, Hawaii, and Nevada.

### **Professional Experience**

2001-Present Carothers Environmental, LLC. Manager/Member and Senior Consultant.

1998-2001 SWCA, Inc. Environmental Consultants, Natural Resources Division Director  
Senior Consultant/Senior Project Manager.

1992-97 SWCA, Inc. Environmental Consultants, Senior Project Manager/Consultant

1991-92 Carothers and Associates Biological Consultants, Principal.

1988-91 SWCA, Inc. Environmental Consultants, Biological Field Technician.

1983-88 SWCA, Inc. Environmental Consultants, Native Vegetation Salvage and Survey  
Technician.

1983-90 SWCA, Inc. Environmental Consultants, Fisheries Technician.

### **Recent Projects**

2002-present Project Manager. WLB/Habitat for Humanity. Prepared a Watercourse Amenities Safety and Habitat Ordinance which included a Biological Resources Assessment and a Pima pineapple cactus survey in Tucson, Arizona.

Senior Biologist. WLB/Tucson Water. Conducted the biological surveys of two properties in Pima County, Arizona owned by Tucson Water for the purpose of expanding the existing facilities. Two Biological Resources Assessments were the product of the surveys and successful consultation with U.S. Fish and Wildlife Service.

Senior Biologist. Granite Construction, Inc. Completion of ADOT Material Source Environmental Analysis report for a site in Pima County, Arizona. The tasks included a biological site inventory, a cultural resources assessment, determination of the presence of jurisdictional waters, the potential effects of hauling materials from the site, and the presence/absence of noxious/invasive weeds.

Senior Biologist/Project Manager. Engineers Inc. A bat habitat evaluation of abandoned mines for proposed closure activities along a riparian area below Hanover Mountain in New Mexico. Two field surveys were conducted to determine if closure activities could potentially impact bat habitat.

Project Manager. Cardon Companies. Site file searches were conducted for two properties using AZSITE to determine known archaeological sites for the proposed projects in Pima County, Arizona.

Project Manager. Bureau of Land Management. Two Environmental Assessments for the permitting of two grazing allotments in southern Utah. Tasks Included conducting range health assessments with BLM resource specialists for both grazing allotments.

Senior Scientist. Johnson Utilities Company, Inc. Prepared and implemented Nuisance Vector Management Plan for 30-acre wastewater treatment facility in Queen Creek, Arizona.

Lead NEPA Technical Writer/ID Team Leader. White Mountain Apache Tribal Forestry Department Prepared Biological Assessment and Environmental Assessment for proposed salvage timber harvest of approximately 375,000 acres affected by the Rodeo/Chediski fire in the White Mountains of Arizona.

Senior Consultant/Lead Field Biologist. Coronado National Forest. Conducted cactus ferruginous pygmy-owl surveys in the Santa Catalina and Nogales Ranger Districts.

Senior Consultant/Project Manager. Cahava Springs Corporation. Conducted cactus ferruginous pygmy-owl surveys on approximately 975 acres in Carefree, Arizona. Also provided consultation to client in development of wildlife corridors throughout proposed development.



### Recent Projects Continued

Senior Consultant/Lead Biologist. The Ranch at Southfork, LLC. Design and implementation of revegetation of approximately 15 acres of riparian habitat along the Southfork of the Little Colorado River. Assisting client in Section 7 Consultation with USFWS, and preparation of Biological Assessment/application for CWA Section 404 permit for the removal of an existing dam on the Southfork of the LCR.

Senior Consultant/Lead Biologist. Peabody Western Coal Company. Wildlife monitoring on Black Mesa Mine Complex. Conducting nest monitoring and raptor inventory within 1-mile buffer zone of approximately 196,000-acre mine leasehold. Included reproductive nest checks of 14 known Mexican spotted owl nest sites.

1999-2001 Project Manager. National Park Service, Guadalupe Mountains National Park. Mexican spotted owl inventory and training class. Prepared and delivered training of Mexican spotted owl inventory and monitoring protocols to NPS Staff biologists. Included actual set-up of fixed-point calling routes and first pass inventory demonstration for park employees and superintendent of two remote survey areas in the Guadalupe Mountains.

Principal-in-charge, NEPA Technical Lead. El Paso Global Networks (EPGN). Conducted Project Management, NEPA analysis, and biological surveys of approximately 1000 miles of gas pipeline and road rights-of way (ROW). EPGN proposes to install fiber optic cable within existing ROW. Third party contractor under Bureau of Land Management (BLM) NEPA lead. Prepared Environmental Assessment under the direction of the BLM. Also prepared project Plan of Development, Monitoring and Mitigation Plan, Conducted USFWS Section 7 Consultations, and conducted oversight of ACOE 404 permits. Conducted cactus ferruginous pygmy-owl surveys along approximately 17-mile segment within critical habitat.

Principal-in-charge. Alpine Recreation LLC. Preparation of Environmental Impact Statement under the direction of the Kaibab National Forest. Alpine Recreation proposes the expansion of the Bill Williams Ski Area.

1999-2001 Project Manager. Peabody Western Coal Company. Biological Assessment and wildlife monitoring (sixth year). Monitoring of several raptor nest sites and conducted comprehensive nest searches for nesting raptors. Conducted prairie dog colony monitoring and surveys, as well as, general special-status species reconnaissance within Peabody's leasehold. Prepared draft and final reports. Mist netting, ANABAT detection, handling, and documentation of several bat species within mine leasehold. Also conducted small mammal live trapping. Handled and documented Hualapai Mexican vole, conducted approximately 30

### Recent Projects Continued

nights of trapping, set grids of 50 traps per night. Trained by Dr. Ken Kingsley, and continued work with Mr. Bryce Marshall.

Project Manager. Peyton Community Builders. Biological Assessment and Evaluation. Proposed development required consultation with the U.S. Fish and Wildlife Service for the Mexican spotted owl, peregrine falcon, and bald eagle. Conducted habitat evaluations and baseline surveys.

Biological Technician. Grand Canyon Monitoring and Research Center. Surveys were conducted for humpback chub for a catch rate study on the Colorado River in the Grand Canyon in order to devise a long-term monitoring program for the canyon's native fish population. Duties included fish identification, stomach sampling, and data entry.

1999-2001 Project Manager. DAVA and Associates. Preparation of two State-level Environmental Assessments under the guidance of the Arizona Department of Transportation for two road improvement projects in Yavapai County, Arizona.

Project Manager. Peabody Western Coal Company. Prepared Environmental Assessment for two proposed Seismic Monitoring Stations and upgrade of access roads.

1999-2001 Project Manager. Ward T. Bell and Associates. Cactus ferruginous pygmy-owl surveys and Section 7 Consultation with USFWS. 160-acre survey area.

Project Manager. Peabody Western Coal Company. Biological Assessment and wildlife monitoring. Monitored several raptor nest sites and conducted comprehensive nest searches for nesting raptors. Conducted prairie dog colony monitoring and surveys, as well as, general special status species reconnaissance within Peabody's leasehold. Mist netting, ANABAT detection, handling, and documentation of several bat species within mine leasehold. Trained by Dr. Ken Kingsley, and continued work with Mr. Bryce Marshall.

1998 Project Manager. Northern Arizona University Department of Forestry. Second Year Mexican spotted owl inventory and nesting raptor census. Surveyed 21,500 acres of Camp Navajo Army Depot for Mexican spotted owls and other nesting raptors.

Project Manager. El Paso Natural Gas. Prepared Environmental Assessment for expansion of Cathodic Protection Station. KOFA National Wildlife Refuge/BLM NEPA Lead. Sonoran desert tortoise habitat surveyed and evaluated for clearance in existing right-of-way.

### Recent Projects Continued

Natural Resource Consultant. Navajo Nation Environmental Protection Agency. Preparation of Clean Water Act Section 319 Nonpoint Source Pollution Assessment and Management Plan for the Navajo Nation.

Desert Tortoise Biologist. Montgomery Watson. Desert Tortoise survey and clearance on 138 acres for the construction of Storm water Containment Basin.

1997  
eagles.

Project Biologist. The Hopi Tribe. Conducted Surveys for nesting golden

Project Manager. Northern Arizona University Department of Forestry. Mexican spotted owl inventory and nesting raptor census. Surveyed 21,500 acres of Camp Navajo Army Depot for Mexican spotted owls and other nesting raptors.

Fisheries Technician. Southern Nevada Water Authority. Assisted fish salvage operations for sport fishery on Lake Mead.

1996

Project Biologist. New Mexico State Highway and Transportation Department Avifauna Survey. Surveyed ten sites throughout New Mexico for special status bird species and conducted habitat assessments for nesting birds in these areas.

Project Manager/Field Supervisor. Peabody Western Coal Company. Biological Assessment and Wildlife Monitoring. Conducted surveys for Mexican spotted owls, northern goshawk, Cooper's hawk, and other special status species.

1995

Field Biologist. Ka'upulehu Land Company. Participated in live capture and transport of Feral Burro using a net gun from a helicopter platform in Kailua-Kona, Hawaii.

Project Manager. Canyon Forest Village. Northern goshawk survey. Supervised all aspects of the survey including direction of field crews and preparation of final report. Surveyed approximately 12,000 acres of U.S. Forest Service land in northern Arizona.

Field Supervisor. Desert Troon. Threatened, endangered and sensitive species surveys. Conducted field surveys for Mexican spotted owl, flammulated owl, northern goshawk, and southwestern willow flycatcher. Supervised all aspects of field surveys. including direction of field crews and preparation of biological evaluation.

### Recent Projects Continued

1994 Project Manager. Summerlin. Desert tortoise survey and removal. Supervised all aspects of the survey including direction of field crews and preparation of interim and final reports and project maps. Surveyed 2600 acres in Las Vegas, Nevada.

1993 Project Manager. Citizens Utilities. Mexican spotted owl inventory. Supervised all aspects of the survey including preparation of final report and project maps. Surveyed approximately 75 acres.

Project Manager. Dixie National Forest. Mexican spotted owl inventory. Supervised all aspects of the survey including direction of field crews and preparation of interim and final reports and project maps. Surveyed 74,500 acres of Forest Service lands.

Project Manager. Apache-Sitgreaves National Forest. Mexican spotted owl inventory. Supervised all aspects of the survey including direction of field crews and preparation of interim and final reports and project maps. Surveyed 10,240 acres.

1992 Project Manager. Coronado and Kaibab National Forest. Mexican spotted owl inventory. Supervised all aspects of project including direction of field crews and preparation of interim and final reports and project maps. Surveyed 44,000 acres of Forest Service lands.

Project Manager. U.S. Forest Service, Dixie National Forest. Mexican spotted owl inventory and reinventory in spotted owl habitat throughout the Dixie National Forest.

1991-92 Field Supervisor. Transwestern Pipeline Company. Supervised crews and monitored along pipeline construction right-of-way to prevent take of Mojave desert tortoise and other threatened and endangered species in western Arizona and eastern Nevada.

1991 Project Manager. ENSR. Mexican spotted owl inventory along 100-mile proposed natural gas pipeline in the San Juan National Forest. Supervised field crews and all other aspects of the project including final report preparation.

Field Supervisor. Dixie, Fishlake, Manti LaSal and Kaibab National Forests. Mexican spotted owl inventory. Supervised field crew of 14 People. Surveyed 200,000+ acres of Forest Service lands.

### Recent Projects Continued

Field Biologist. El Paso and Transwestern Pipeline Companies. Participated in field Surveys for flammulated owls along proposed pipeline expansion routes.

### Recent Projects Continued

Field Biologist. Washington County, Utah. Field surveys along approximately 600-mile long transects for Mohave desert tortoise for a Habitat Conservation Plan.

1990 Field Supervisor. Dixie National Forest. Mexican spotted owl inventory. Supervised crew of 10 people. Surveyed 143,000 acres of Forest Service lands.

Field Biologist. ENRON. Biological Assessment for Mohave desert tortoise on 3,200 acres in the Las Vegas Valley.

Field Biologist. Gila National Forest. Mexican spotted owl Inventory. Participated in second year survey of 189,000 acres of Forest service lands.

1989 Field Biologist. McCarran International Airport. Biological Assessment for the Mohave desert tortoise on 3,103 acres in the Las Vegas Valley.

Field Biologist. Gila National Forest. Mexican spotted owl inventory. Participated in the surveying of 189,000 acres of Forest service lands.

Field Biologist. Del Webb. Native vegetation survey and salvage. Tucson, AZ.

Field Biologist. Rancho Vistoso. Native vegetation survey and salvage. Tucson, AZ

1988 Field Biologist. Estes Homes, Ventana Canyon. Native vegetation survey and salvage. Tucson, Arizona.

1988-87 Field Biologist. Estes Homes, Ventana Canyon. Native vegetation survey and salvage. Tucson, Arizona.

1986 Field Biologist. La Reserve. Native vegetation survey and salvage. Tucson, Arizona.

1985-90 Biologist. National Park Service, Bureau of Reclamation, and Hualapai Tribal Studies. Small mammal population density/diversity surveys on a variety of contracts of these entities to SWCA.

### **Recent Projects Continued**

1983-85

Biologist. Electro-fishing and fisheries surveys on the Colorado River from Glen Canyon Dam to Lake Mead. Participated in surveys for Arizona Game and Fish, Bureau of Reclamation, and the Hualapai Tribe on a variety of contracts from these entities to SWCA. Handled rainbow trout and humpback chub.

**Transmission Routing Report  
on  
Pinal West - Santa Rosa/Southeast 500 kV  
for  
Save Our Valley Association**

**A. Summary**

Gary Rich, P.E. was retained by Save Our Valley Association (SOVA) to review the routes proposed by SRP for the Pinal West - Santa Rosa/Southeast Valley 500 kV transmission line and to determine if there were viable alternative routes. The investigation was limited to the existing study area and included such items as land uses, right of way requirements, constructability, visual, and environmental issues. Carothers Environmental, LLC provided information on biological and cultural resources.

The study process included review of the following documents:

- SRP proposed transmission routes
- Hearing transcripts for the Palo Verde - Pinal West Project, Case No. 124
- Environmental Assessment for the Palo Verde to Pinal West Project
- CATS study web site
- Biennial Transmission Assessment 2004-2013

The investigation also included discussions with local landowners, field review of the proposed routes and the surrounding study area, meeting with SRP and Greystone Environmental representatives, and discussions with BLM and Arizona Corporation Commission staff.

Over the past thirty years several 500 kV lines have been permitted through this area. As an example, Case 24 in 1975 permitted two 500 kV line in a common corridor for approximately 46 miles for a Palo Verde - Kyrene and Palo Verde - Saguaro line. In 2004, Case 124 permitted two Palo Verde - Pinal West 500 kV lines in the same corridor making a total of four 500 kV lines. In 1974, Case 15 authorized an option to increase the voltage of the proposed Westwing - Vail line, from 345 kV to 500 kV. Additional planning studies are needed to determine which of the 500 kV lines permitted to date will in fact be built. For the purpose of this report, it has been assumed that only one of the two presently permitted 500 kV lines will be constructed in that portion of the BLM transmission corridor which is included in the alternate route which SOVA is proposing. In addition, it has been assumed (on the basis of legal advice from SOVA's counsel) that both the Arizona Power Plant and Transmission Line Siting Committee and the Arizona Corporation Commission have the authority, in light of changed circumstances which have occurred during intervening years, to reconsider decisions made in previous cases as to whether transmission routes then authorized (but yet to be constructed) now represent the best siting decision given the policy objectives and statutory criteria set forth in the siting statutory scheme.

The result of the study conducted for SOVA is a recommendation that the proposed SRP Pinal West - Santa Rosa/Southeast Valley 500 kV transmission line follow the APS Certificated Gila Bend - Santa Rosa 230 kV corridor from Pinal West Substation to the vicinity of Teel and Ralston Roads as the preferred alignment. It is suggested that in the section of State Trust Land bounded by Miller and Barnes on the north and south and Warren and Ralston Roads on the east and west the alignment be moved to the edges of the section instead of diagonally through the section, as APS's current CEC for the 230 kV line provides.

#### **B. Proposed SOVA Route - APS Certificated 230 kV Alignment**

The proposed SOVA Route extends south from Pinal West Substation along the TEP Westwing - South 345 kV line through flat open sparsely vegetated terrain. About three-fourths of a mile south of Pinal West the route enters BLM transmission corridor. Approximately one-fourth mile further south the route begins to climb through a rocky foothill area reaching a narrow saddle at a point approximately two miles south of the Pinal West Substation before descending into and through a detention basin for storm water runoff for a distance of about one mile. The route then continues through flat open sparsely vegetated land about one additional mile before existing the BLM at Miller Road. The route continues to parallel the TEP corridor through private land for approximately one mile to Barnes Road before turning east. This section of line would be constructed on lattice steel structures with dulled galvanized steel finish and non-specular conductor to minimize visual impacts.

The private land from Miller Road to the intersection with the SRP Preferred Route is flat open with sparse vegetation. The first area of multiple rural residences is encountered between Miller and Barnes Road. At this point the SOVA Route is in the same corridor as the TEP 345 kV line. After turning east paralleling Barnes Road the second area of multiple rural residences is encountered between Hidden Valley Road and Warren Road. The present rural residential development is primarily south of Barnes Road, but is on the north side as well. The section of land between Warren and Ralston Roads is State Trust Land and the route would parallel the southern boundary of this section to Ralston Road. The currently permitted APS 230 kV route runs diagonally through this section. At this point there are two options. One is to parallel Ralston Road to Teel Road where it would intersect with the SRP Preferred Route. The second would be to parallel Ralston Road north to Miller Road then east along Miller Road to White Road. The alignment then parallels White Road to Teel Road intersecting with the SRP Preferred Route at that point. SOVA can support use of either option.

#### **C. Advantages of the SOVA Route**

- The SOVA Route is located in an existing transmission line corridor from Pinal West Substation to Barnes Road, or a distance of roughly 5.3 miles which is approximately 50 per cent of its length. The SRP Preferred Route is in the same existing transmission line corridor from Pinal West Substation to Papago Road, about  $\frac{3}{4}$  of a mile.
- While the SOVA Route is longer in linear distance, the amount of land required for the Right of Way for the routes proposed by SRP and SOVA, respectively, is almost identical.



- The entire SRP Preferred Route is in an area that can be characterized as rural residential. Thirty per cent (30%) of the SOVA Route is on BLM land with the remainder in a rural residential area.
- Neither SRP's proposed route(s) or the SOVA route present problems in design or construction. However, the SRP Preferred Route has twice as many heavy angle structures. The added cost of the heavy angle structures and the lower cost of the BLM Right of Way mitigate the cost of the longer SOVA Route. Moreover, when examined in the context of overall area "A" costs and the time period over which transmission facilities costs are traditionally recovered through rates, the cost differential associated with the proposed SOVA Route is not significant, particularly with the advantages associated with that route.
- With the exception of one structure in the "pinch point" (discussed below) on the BLM corridor, the SOVA Route has about three miles less transmission line in the Hidden Valley area and less overall intrusion into the landscape.

### **Pinch Point**

Approximately two miles south of the Pinal West Substation on the BLM corridor there is a narrow saddle sometimes referred to as the "pinch point". The pinch point is about 2000 feet from end to end with one structure located in the middle portion of the saddle. The SOVA Route parallels the TEP corridor through this saddle on the east side of the existing line. There would be a 500 kV structure located about 130 feet up hill from the existing 345 kV structure. The ground elevation is about 30 feet higher and the 500 kV structure would be about 125 feet in height. This structure would be visible from some locations in the valley. However, most of the view points are from several miles and can be mitigated by using non-specular conductor and dulled lattice steel.

### **TEP Corridor**

The TEP Westwing - South 345 kV corridor is 330 feet in width with the existing line 110 feet from the easterly edge, and room for an additional certificated optional 345 or 500 kV line (Case No. 15). For a distance north of Pinal West Substation the TEP corridor is paralleled by the recently certificated Palo Verde - Pinal West 500 kV lines, and south of the substation the corridor is paralleled by the SRP Preferred Route for the Pinal West - Santa Rosa/Southeast 500 kV, for a distance of approximately  $\frac{3}{4}$  of a mile.

### **Consolidation of Facilities**

The SOVA Route provides an opportunity for consolidation of facilities within the existing TEP corridor. The proposed 500 kV line can be constructed as half of a double circuit 500 kV line with the previously certificated (Case No. 15) TEP circuit installed in the vacant position. This proposal has the advantages of not requiring additional rights of way, eliminates the "pinch point" concerns, and would have less visual impact even though the structures would be taller. The design criteria for the double circuit line can be selected so that the structural reliability is equal to or greater than that of a single circuit line.

**GARY ROBERT RICH, P.E.**  
**ELECTRICAL ENGINEER**

**EDUCATION:**

M.S.E./ University of Santa Clara, Santa Clara, CA  
B.S.E.E./ Washington State University, Pullman, WA

**ACTIVE REGISTRATION:**

Electrical Engineer, California

**RELEVANT EXPERIENCE:**

**Nevada Power, Las Vegas, NV (1997-2002)**

**Staff Transmission Engineer**

Project Engineer for the design of over 50 line miles of quad circuit 230/138 kV, 50 line miles of double circuit 230 kV, the Harry Allen - Crystal 500 kV line, and the loop of the Navajo - McCullough 500 kV into Crystal Substation. Responsibilities included design, material specification, construction specification and administration of contracts with consultants.

**The Bentley Company, Walnut Creek, CA (1996-1997)**

**Senior Transmission Engineer**

Project Engineer for the design of additions and modifications to transmission facilities of Pacific Gas & Electric. Projects include reconductor, installation of fiber optic cable, installation of line switches, repair of deteriorated facilities, routing and design of new facilities, and rerates of existing lines.

**PacifiCorp, Portland, OR (1993-1996)**

**Senior Staff Engineer**

Project Manager for the design and permitting of a 45 mile 230kV transmission line in southwest Washington.

Project Engineer for design and installation of self-supporting all dielectric and groundwire fiberoptic communication cables on electric transmission and distribution lines.

Project Engineer for design and construction of facilities to interconnect PacifiCorp with the Clark Public Utilities District (Washington).

**GARY ROBERT RICH, P.E.**  
**ELECTRICAL ENGINEER - PAGE TWO**

Developed transmission line EMF design guidelines and represented PacifiCorp in California Interim EMF Proceedings.

Representative on City of Camas, Washington Ad Hoc Transmission Line Committee for the development of transmission siting ordinance.

Provided testimony to Oregon Energy Facility Siting Council on EMF.

**Pacific Gas and Electric Company, San Francisco, CA (1965-1993)**  
**Senior Electrical Engineer**

Project Manager for additions and modifications to PG&E facilities to interconnect with the California Oregon Transmission Project (COTP). Work included substation, transmission line, protective relays, telecommunications, remedial action, and energy management systems. Negotiated and administered contracts, monitored cost and schedule, and provided liaison between PG&E and the COTP.

Supervisor of the Transmission Line Design Group from September 1989 to September 1990. Supervised nine engineers and twenty three designers and technicians,

Developed high wind analysis and implemented high wind modifications to PG&E's 500kV transmission system.

Engineering Representative on the COTP, including two years as Chairman of the COTP Engineering/Technical Committee. Participated in routing studies, preparation of the EIS/EIR, development of the design criteria and specifications review and approval of contracts. Provided testimony to the California Public Utilities Commission (CPUC) for the permitting of the project.

Project Manager for routing, permitting, and design of an 85 mile 500kv transmission line.

Project Engineer for 60, 115, 230, and 500kV transmission line projects. Prepared project assessments for bulk transmission system reinforcements including hydro relicensing, cogeneration interconnection, and inter-state transmission projects.

Designed interconnection transmission facilities for cogeneration facilities including wind, solar, hydro, and fossil.

**GARY ROBERT RICH, P.E.**  
**ELECTRICAL ENGINEER - Page 3**

Provided technical support for upgrades, modifications, and repair of major transmission lines. Participated in the development of wood pole transmission line design manual and construction rigging manual and provided training to PG&E personnel. Developed electrical design and structural loading criteria for transmission lines. Provided expert testimony for permitting and legal actions.

Project team for California's application for the Superconducting Super Collider.

Project team for a proposal for the Hawaii Geothermal/Inter Island Project.

Project team for Western Regional Corridor Study.

**Construction Engineer**

Relief General Foreman in PG&E's Line Construction Department. Responsibilities included supervision of 60-100 employees, job scheduling and crew assignments. Performed field engineering and inspection of additions and modifications to the distribution and transmission system. Project Manager for the installation of a 60kV pipe type underground cable. Construction Supervisor for a 230kV overhead transmission project.

**Electrical Engineer**

Project Engineer for the location and design of 60, 115, and 230kV transmission lines. Project Engineer for the development of the transmission outlets for a 1600MW coal plant and a 1600MW fossil plant in California and a 2000MW out-of-state coal plant.

Developed per unit cost data for overhead transmission lines.

Developed data and testimony for Environmental Impact Reports.

Developed transmission engineering standards.

**Field Engineer**

Assigned to the Pacific Northwest/Pacific Southwest 500kV Project. Responsible for conductor installation, relocation of existing facilities, and development of special tools and equipment.

**PROFESSIONAL AFFILIATIONS:**

IEEE, Senior Member

## **SUMMARY OF TESTIMONY**

**OF**

**DENNIS M. PEED**

Dennis Peed will testify in his capacity as both a Co-Chairman of Save Our Valley Association (SOVA) and as a residential and business property owner within the area impacted by SRP's proposed preferred and alternate routings for the proposed 500 kV transmission line between Pinal West substation and Santa Rita substation.

Mr. Peed will describe the circumstances that led to the formation of SOVA, and the nature of the concerns of many of its members with respect to the public process used by SRP and its consultants. These concerns include, but were not limited to, insufficient advance notice of public meetings, inability to obtain desired information, and lack of responsive answers and inconsistent responses from SRP and Greystone representatives to questions posed by members of SOVA. His testimony will also include a description of his personal experience in this regard.

Mr. Peed will also describe the process through which SOVA organized itself, the activities undertaken by its members to analyze and evaluate SRP's proposed route(s) as related to their interests, and the actions undertaken by SOVA to develop a proposed alternate route in a portion of Area "A" for consideration by the Arizona Power Plant and Transmission Line Siting Committee.

Finally, Mr. Peed will describe SOVA's retention of the consultants who will be presenting testimony on its behalf in support of the alternative route SOVA is proposing, and why SOVA believes that route warrants favorable consideration by the Siting Committee.

## SOVA WITNESSES

### Summaries

1. FRANK GALIARDI, 8716 N. Thunderbird Road, since 1995.

A heating, air conditioning contractor,  $3 \frac{1}{3}$  acres, living temporarily in a mobile home while building the dream house for myself, wife and children. House is 5,500 square feet.

Located south of Teel Road and adjoining gas pipelines on the North.

Enjoys country living, scenery and the views.

The proposed power line will be several hundred feet away from his home and substantially impact his view.

Opposes the SRP route and supports the SOVA route.

2. GREGORY TURTURRO, 10285 N. Reggae Road, since 1998.

An electrical contractor.

40 acres, near Node 205.

A unique elevated lot with great views. Enjoys the quiet and the views, particularly the mountains to the north. The proposed lines and poles will be directly in his line of sight because the lot is elevated. Opposes the SRP route and supports the SOVA route.

3. Jerald (Jerry) Bricker, 52640 W. Dove Drive, since 1993.

Systems analyst and plans to retire here.

$3 \frac{1}{3}$  acres, near the northeast corner of Warren Road and near Node 12.

Owns and rides horses.

Enjoys the quiet country life, the sky and the nice views.

Opposes the SRP route and supports the SOVA route.

4. Wayne Bolton, 9484 North Bottlebrush Road, since 2000.

Owens 4.6 acres, south of gas lines.  
Enjoys the views, particularly looking north  
and east of the mountains. SRP lines and  
poles would block the views.  
Opposes the SRP route and supports the  
SOVA route.

5. Betty Ann Bolton, 55301 W. Ashley Court, since June, 2004.

Retired with 3 sons in the immediate area.  
Owens 2.5 acres, south of gas lines.  
Lot is elevated with mountain views looking  
northwest to southeast.  
SRP lines and poles would block the views.  
Opposes the SRP route and supports the  
SOVA route.

6. Nathan England, 52363 W. Teel Road, since 1997.

Electronics technician.

7 acres, south side of Teel Road, has clear  
views on 3 sides, enjoys the atmosphere.  
Works with neighbor on static sensitive  
devices which will not be possible via the  
SRP line.  
Opposes the SRP route and supports the  
SOVA route.

7. Tim Smith, 56180 W. Mayer, since 1990.

Emergency medical services helicopter pilot

40 acres, enjoys the views, peace and quiet,  
concerned about the environment.

Opposes the SRP route and supports the  
SOVA route.

8. Cindy L. Allen, 8400 N. Thunderbird Road, since 2002.

A laboratory technician.

5.25 Acres, building retirement home which she and husband plan to occupy in 2 years. Beautiful area, likes rural life style on the desert, has 2 horses. Property fronts on south side of Teel Road in the path of the SRP line. Near Node 22 – Warren rd. & Ted Rd.

Opposes the SRP route and supports the SOVA route.

9. Mona Jones, 11533 N. Table Top Road, since 1999.

18.5 acres, enjoys the views, country lifestyle and desert living, and has horses. Near Node 198, at Table Top Rd. and Papago Rd. SRP preferred route will be on her property.

Opposes SRP route and supports SOVA route.

10. Mike Dye – Arizona businessman, tel. 602-437-3484

An absentee land owner of 640 acres who never received SRP notice. Also, speaks for Amer Chondhry, another absentee land owner of an adjoining 320 acres who likewise never received a SRP notice.

The SRP route goes through both properties. Both land owners were ultimately informed of the situation by Dennis Peed of SOVA.

Opposes the SRP route and supports the SOVA route.